/\* exp.java - compute e(x) \*/

 public class exp1

{

 static public double compute\_e()

 {

 double n, nf, result, term, eps;

 result = 1;

 nf = 1.0;

 n = 1.0;

 eps = 0.000000000000000001;

 do {

 term = 1.0/nf;

 result += term;

 n = n + 1.0;

 nf = nf \* n;

 } while (term > eps);

 return result;

 } /\* compute\_e \*/

 static public double my\_exp( double x, double eps, double e)

 {

 double n, nf, xp, result, term, ek;

 int k;

 k = (int)x;

 x = x - k;

 ek = 1.0;

 for (; k > 0; k--)

 ek = ek \* e;

 x = x - k;

 System.out.println("ek = " + ek + ", k = " + k + ", x = " + x);

 result = 1.0;

 xp = x;

 nf = 1.0;

 n = 1.0;

 do {

 term = xp/nf;

 result += term;

 xp = xp\*x;

 n = n + 1.0;

 nf = nf \* n;

 } while (term > eps);

 result = ek\* result;

 return result;

 } /\* exp \*/

 public static void main(String args[])

 {

 double sqr\_root\_e, lib\_value, e;

 e = compute\_e();

 System.out.println("e = " + e);

 System.out.println("lib e = " + Math.exp(1));

 sqr\_root\_e = my\_exp(3.7, 0.000000000001, e);

 lib\_value = Math.exp(3.7);

 System.out.println("Our value = " + sqr\_root\_e+" , Lib value = " +

 lib\_value);

 } /\* main \*/

} // exp1

פלט ריצה:

e = 2.7182818284590455

lib e = 2.7182818284590455

ek = 20.085536923187675, k = 0, x = 0.7000000000000002

Our value = 40.44730436006734 , Lib value = 40.4473043600674

/\* sin2.java - compute sin(x) in radians, using the taylor series \*/

/\* Compute sin(x) within epsilon \*/

public class sin2

 {

 static public double my\_abs( double x)

 {

 if ( x >= 0)

 return x;

 else

 return -x;

 } /\* my\_abs \*/

 public static double pi;

 public static double my\_sin( double x, double eps)

 {

 double sinx, xx, nf, R, xp, n, sign, flag;

 int k;

 flag = 1.0;

 if (x < 0)

 {

 flag = -1.0;

 x = 0 - x;

 } /\* if \*/

 if ( x> 2\*pi)

 {

 k = (int) (x/(2\*pi));

 x = x - k\*2\*pi;

 if (x > pi)

 {

 x = x - pi;

 flag = -1.0 \*flag;

 } /\* if \*/

 if (x > pi/2.0)

 x = pi - x;

 } /\* if \*/

 xx = x\*x;

 nf = 1.0;

 sinx = 0.0;

 xp = x;

 n = 1.0;

 sign = 1.0;

 do

 {

 R = my\_abs(xp / nf) ;

 sinx = sinx + sign \* R;

 sign = - sign;

 xp = xp \* xx;

 nf = nf \* ((n+1.0)\*(n+2.0));

 n = n + 2.0;

 } while( R >= eps );

 return flag \* sinx;

 } /\* my\_sin \*/

 public static void main(String args[])

 {

 double x, eps, y;

 pi = 3.141592653589793238;

 x=-(7\*180-53)\*pi/180.0;

 eps = 0.00000000001;

 y = my\_sin(x, eps);

 System.out.println("\nsin(" + x +"), within " + eps +

 ", = " + y);

 System.out.println("\nlib value sin(" + x + " %) = " +

 Math.sin(x));

 } /\* main \*/

} // sin2

פלט ריצה:

sin(-21.066124071571558), within 1.0E-11, = -0.7986355100472917

lib value sin(-21.066124071571558 %) = -0.7986355100472929